study was performed in ISH slides using Leica Image Analysis System. Three groups AV were analyzed: Group A - 10 autopsy AV from non-atherosclerotic patients. Group B - 10 autopsy non-stenotic AV of severe atherosclerotic patients. Group C - 10 stenotic AV from valvular replacement Results - MP was present in 100% of valves from groups A, B and C. MP was diagnosed at electron microscopy as extracellular irregular small structures containing granular dots resembling DNA or RNA (confirmed by ISH), a simple envelope membrane, with no intracellular organelles. Group B presented higher % area of MP than group A (1,8 vs 0,7), that concentrated in the calcified nodules (5,5) seen at ISH as small brown dots. Group C had higher amount of ISH positive areas only in the calcified areas where the ISH revealed homogeneous staining pattern associated to the small dots pattern. The tissue surrounding the calficified areas was usually thickened by fibrosis and mononuclear inflammation, and presented significant less amount of MP DNA (0,33) p<0,01. Conclusion - Mycoplasma pneumoniae is a frequent bacteria in aortic valves. A greater amount is present in patients with systemic atherosclerosis, and mainly in calcified foci. The fibrotic calcified nodules of SAV present characteristics compatible with old foci of mycoplasma accumulation. The areas of granulation tissue and fibrosis surrounding calcified nodules may represent an immune response against bacteria proliferation.

1065-144 Cardiovascular Risk Factors and Mortality From the Seven Countries Study 40 Years After: The Greek Experience

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BACKGROUND. The Seven Countries Study has completed 40-years activity and the middle-aged populations studied at the onset are presently composed of elderly subjects. This study aims to examine cardiovascular (CVD) risk factors in relation to CVD mortality in the Corfu cohort and compare these findings with other populations, included in the study.

METHODS. The population studied in this analysis consisted of rural men enrolled at 1960 (n=509, 49.7±5.7 years old). Among several factors the conventional CVD risk factors were investigated. Univariate and multivariate survival analyses were performed with CVD mortality as the end-point. Cox proportional hazards models were used in order to assess the investigated parameters and to compare survival distributions among populations.

RESULTS. The age adjusted 25-year death rate (per 1000) from all causes was 40.4% (95% CI 36.2-44.6%), while the 40-years death rate was 86.4% (95% CI 72%-98%). The 25-years CVD mortality was 7.6% (95% 6.2-9.3%) while the 40-years was 18.2% (95% 16.9-23.2%). Age (Hazard ratio=1.086, P<0.01), systolic blood pressure (HR=1.023, P<0.01), serum cholesterol (HR=1.0043, P<0.01), physical activity (HR=1.051, P<0.01), body mass index (HR=1.013, P<0.01) and smoking (HR=1.017, P<0.01) were independently associated with 40-year CVD mortality. The observed associations between depression (HR=1.007, P<0.07), afternoon siesta (HR=1.01, P<0.08), HDL-cholesterol (HR=1.003, P<0.07), subscapular skinfold thickness (HR=1.002, P<0.09) and mortality were related on the in- or exclusions of early death (P-value < 0.08). Published data from the other cohorts showed lower CVD mortality in the Mediterranean cohorts (Italy, Greece and Croatia/ Serbia) compared to the North European and US populations (P<0.001).

CONCLUSION. In these elderly men age, smoking habits, systolic blood pressure, serum cholesterol, body mass and physical activity, were consistently associated with CVD mortality. Evidences from other cohorts indicate differences in mortality between populations that may attribute to dietary patterns or cultural particularities that they did not investigated in the present study.

1065-145 Plasma Lycopene and the Risk of Cardiovascular Disease in Women

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Lycopene remains sparsely tested in prospective studies for its role in the primary prevention of cardiovascular disease (CVD). We therefore determined whether plasma lycopene levels in middle-aged and older women from the Women's Health Study predicted the risk of developing CVD in a prospective, nested case-control design. Baseline bloods were collected from 28,263 (71%) of 39,876 women, of whom 483 cases of CVD (including myocardial infarction (MI), stroke, CVD death, revascularization procedures, and angina) and 483 age- and smoking-matched controls free of CVD during an average of 7 years follow-up were selected. Besides plasma lycopene, other plasma carotenoids and total cholesterol (TC) were measured, plus baseline coronary and dietary risk factors. Of the 483 cases identified with CVD, there were 109 MIs, 112 strokes, 85 revascularizations, 33 CVD deaths, and 144 cases of angina. In analyses matched on age and smoking, plus adjustment for plasma TC level, the relative risks (RRs) (95% confidence intervals) of total CVD for women in the lowest to highest quartiles of plasma lycopene were 1.00 (ref), 0.78 (0.55-1.11), 0.56 (0.39-0.81), and 0.62 (0.43-0.90) (p, linear trend=0.004). Upon additional adjustment for coronary risk factors, the RRs of total CVD for women in the lowest to highest quartiles of plasma lycopene were 1.00 (ref), 0.94 (0.60-1.49), 0.62 (0.39-1.00), and 0.67 (0.41-1.11) (p, linear trend=0.05). This pattern in RRs suggested a threshold effect in which women in the upper half of plasma lycopene had a significant 34% reduction in the CVD risk. For CVD excluding angina, an L-shaped association was apparent as women in the upper three quartiles had a significant multivariate 50% risk reduction compared with those in the lowest quartile of plasma lycopene. The addition of individual plasma carotenoids did not strongly impact the multivariate RRs. In conclusion, we found that higher plasma lycopene levels were associated with a reduced risk of CVD in middle-aged and older women. A better understanding of the determinants of plasma lycopene levels is needed to determine how to raise plasma lycopene up to a clinically relevant level at which cardiovascular benefits may be attained.

POSTER SESSION

1086 Heart Failure: Exercise/Periphery

Monday, March 18, 2002, 9:00 a.m.-11:00 a.m.
Georgia World Congress Center, Hall G
Presentation Hour: 9:00 a.m.-10:00 a.m.

1086-153 Inter-Relationship of Endothelin-1 and Natriuretic Peptide Secretory Responses to Acute Exercise in Patient With Chronic Heart Failure and Healthy Controls

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We investigated the inter-relationship between pathogenic endothelin-1 (ET-1) and counter-regulatory atrial (ANP) and brain (BNP) natriuretic peptides in patients with stable CHF. Methods: Sixty-men (58±10 yr.) with stable CHF (ischaemic or idiopathic cardiomyopathy only) of NYHA grade I-IV and ejection fraction <40% were enrolled. Sixteen age-matched (56±6) healthy men served as controls. Venous blood samples were obtained at rest and peak exercise. Cardiopulmonary exercise was performed using modified Bruce treadmill protocol and peak oxygen consumption (VO2) was measured (AMIS 2000,Denmark). Investigations were performed after overnight fast. Radioimmunometric assay (Shionaria, Shionogi,Japan) were used to measure ANP and BNP and ELISA (Biotra, Amersham,UK) to measure ET-1. Alternating Conditional Expectation Algorithm was used to elucidate the relationship between peptides. Results: Resting plasma levels of ANP [median and (interqurtile 25-75%): 12.4 (8.0-21.4), 4.4 (3.1-5.1) pmol/l, P=0.001)], BNP [14.6 (6.0-37.7), 1.15 (0.8-2.3) pmol/l, P<0.0001)], and ET-1 [2.1 (1.6-2.9), 1.8 (1.2-1.9) pmol/l, P=0.05)], were higher in patients than in controls. VO2 was higher in controls than in patients (35.8±5.2, 19.9±8.1ml/kg/min; P<0.0001). All these peptides were significant increased with exercise both in patients and controls (P =0.001 to <0.0001). Resting or peak exercise ET-1 was correlated with resting or peak exercise ANP and BNP (r=0.53 to 0.83; P=0.01to <0.0001) in patients not in controls. Logarithm transformed ANP and BNP (resting and peak) were linearly related to resting as well as peak ET-1 [R-squared 0.20 - 0.66, Slope 0.89 to 2.41(CI 0.42-1.40 to 1.94-2.88), constant 0.87 to 2.31 (CI 0.2-1.18 to 1.87-2.75); all P <0.0001). Based on regression models, we estimated plasma levels of natriuretic peptides using resting ET-1 as a predictor. Doubling in resting ET-1 leads to a predictable increase in ANP (2.18-fold resting and 2.13-fold peak exercise) and BNP (5.32-fold resting and 4.45-fold peak exercise). Conclusions: Rise in plasma ET-1 in patients not in controls is associated with predictable increase in not only resting but also peak exercise plasma ANP and BNP.

1086-154 Ventilatory Response to Exercise in Heart Failure Patients Treated With Beta-Blockers Is a Better Predictor of Survival Than Peak Oxygen Consumption

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Background: Abnormally high ventilatory response to exercise was shown to be a powerful and independent predictor of survival in heart failure patients not receiving beta-blockers. However, the prognostic value of ventilatory responses in patients chronically treated with beta-blockers is unknown.

Methods: We performed a retrospective review of randomly selected charts available on site at University of Colorado Heart Failure Clinic. Adults with chronic heart failure due to ischemic and non-ischemic cardiomyopathy, who underwent cardiopulmonary exercise testing were included if they were on a beta-blocker in addition to standard medical treatment of heart failure. Patients with lung disease were excluded. The abnormally high ventilatory response to exercise was defined as the value of ventilation to carbon dioxide (CO_2) production (V_E/VCO_2) at peak exercise. Cut off values were based on 80th percentile and higher, which corresponds to V_E/VCO_2> 44.7, as previously published as a predictor of survival in patients not treated with beta-blockers by Robbins M. et al (Circulation.1999; 100:2411-2417). The primary end-point was death due to any cause.

Results: There were 51 patients eligible for analysis. 10 patients had abnormally high ventilatory response with mean V_E/VCO_2 = 51.9±5.7 compared to 41 patients with normal ventilatory response 36.5±4.1 (p=0.005). There were no significant difference in age 59±11 vs. 54±10 years, LVEF 30%±13 vs. 30%±12, etiology 50% vs. 52% of ischemic cardiomyopathy, females 20% vs. 22.5 %, peak VO_2 12.1 ±2 vs. 15.6±4.2 ml/kg/min and RER 1.1±01 vs. 1.1±0.1 between two groups. Kaplan-Meier survival curves at 5 years demonstrated a survival rate of 47% in patients with abnormally high ventilatory response (V_E/VCO_2> 44.7) compared to 98% in those with normal ventilatory response (p=0.001). Predicted 5 years survival was 80% for patients with peak VO2 ≤14 ml/kg/min and 86% in patients with peak VO_2>14 (p=0.07).

Conclusions: Abnormally high ventilatory response is a better predictor of survival than peak oxygen consumption in heart failure patients treated chronically with beta-blockers.